

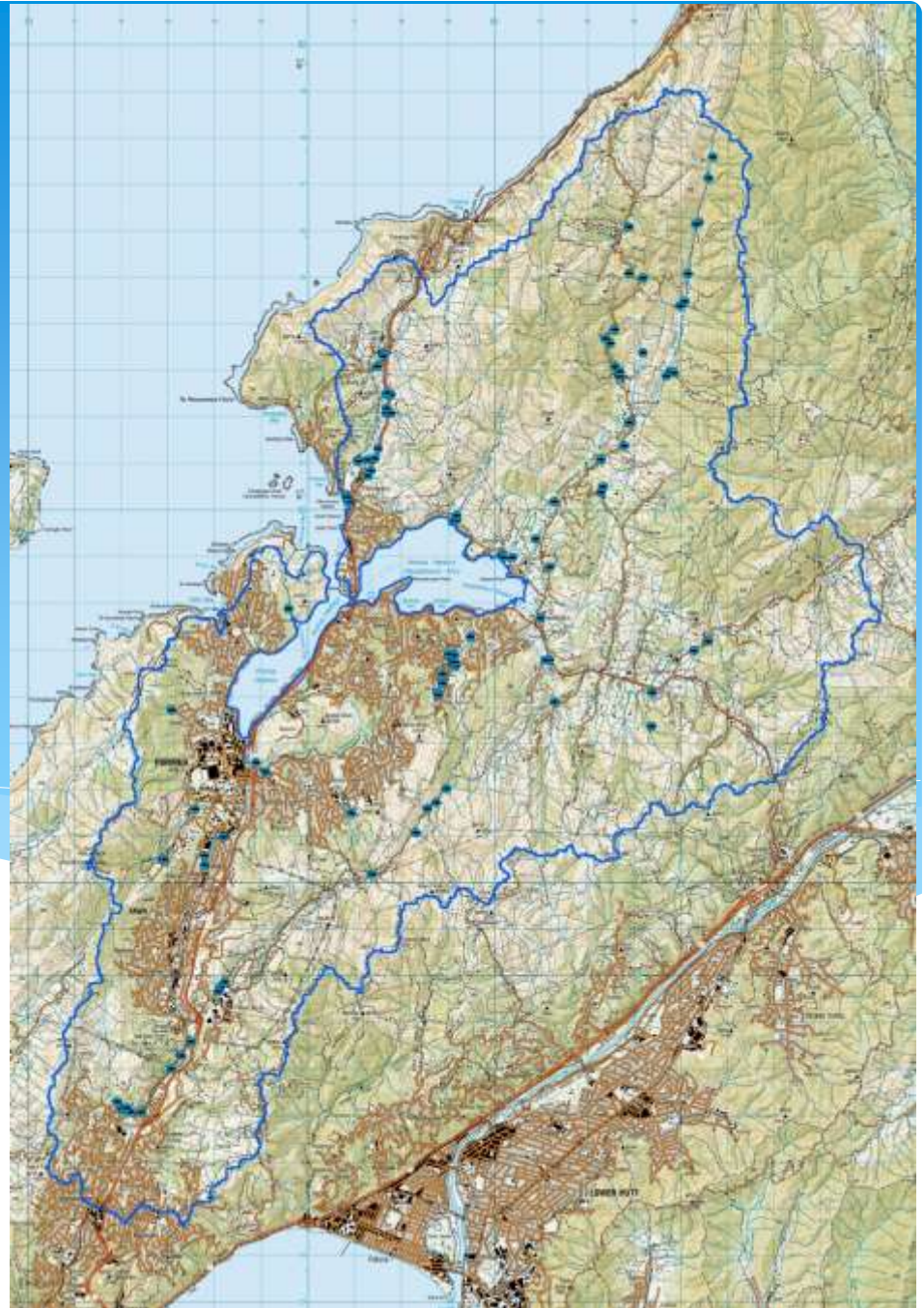
# Freshwater fish values in Porirua Harbour catchment

# Porirua Harbour Fish survey locations NIWA database

## Caveats:

- Includes survey data from 1961 – 2014
- Not all surveys in database
- Not a measure of abundance
- Species noted in each survey

<https://www.niwa.co.nz/our-services/online-services/freshwater-fish-database>



# Taupo Stream/swamp Kakaho Stream



# Taupo Stream/swamp Kakaho Stream

Species	Threat Rank	# surveys	
		Taupo	Kakaho
Giant kokopu	At Risk-Declining	3	
Inanga	At Risk-Declining	2	2
Longfin eel	At Risk-Declining	7	2
Redfin bully	At Risk-Declining	2	2
Inanga	At Risk-Declining	1	
Shortfin eel	Not Threatened	4	2
Banded kokopu	Not Threatened	13	1
Common bully	Not Threatened		1
Giant bully	Not Threatened		1
Common smelt	Not Threatened		1
Grey mullet	Not Threatened	1	
Estuarine triplefin		2	
Koura	Not Threatened	2	
Freshwater shrimp	Not Threatened	1	1
Unidentified eel	N/A	1	
No species found	N/A	4	



# Horokiri Stream Little Waitangi Stream (Ration Stream)



# Horokiri Stream

## Little Waitangi

Species	Threat Rank	Horokiri	Little Waitangi (Ration)
Lamprey	Threatened-Nationally Vulnerable	7	1
Shortjaw kokopu	Threatened-Nationally Vulnerable	1	1
Giant kokopu	At Risk-Declining	8	2
Inanga	At Risk-Declining	7	1
Koaro	At Risk-Declining	4	
Longfin eel	At Risk-Declining	27	1
Redfin bully	At Risk-Declining	25	2
Torrentfish	At Risk-Declining	2	
Banded kokopu	Not Threatened	9	2
Common bully	Not Threatened	10	1
Giant bully	Not Threatened	1	
Koura	Not Threatened	7	
Shortfin eel	Not Threatened	24	1
Black flounder	Not Threatened	2	
Common smelt	Not Threatened	5	1
Yelloweye mullet	Not Threatened	3	
Estuarine triplefin	N/A	2	
Unidentified eel	N/A	5	
Unidentified flounder	N/N	1	
Brown trout	Introduced and naturalised	14	



# Pauatahanui Stream



# Pauatahanui Stream

Species	Threat Rank	Pauatahanui
Lamprey	Threatened-Nationally Vulnerable	2
Longfin eel	At Risk-Declining	5
Freshwater mussel	At Risk-Declining	1
Giant kokopu	At Risk-Declining	2
Inanga	At Risk-Declining	5
Redfin bully	At Risk-Declining	4
Shortfin eel	Not Threatened	5
Banded kokopu	Not Threatened	2
Common bully	Not Threatened	3
Koura	Not Threatened	1
Freshwater shrimp	Not Threatened	1
Common smelt	Not Threatened	2
Brown trout	Introduced and naturalised	3
Unidentified eel	N/A	3
Unidentified Galaxiid	N/A	1



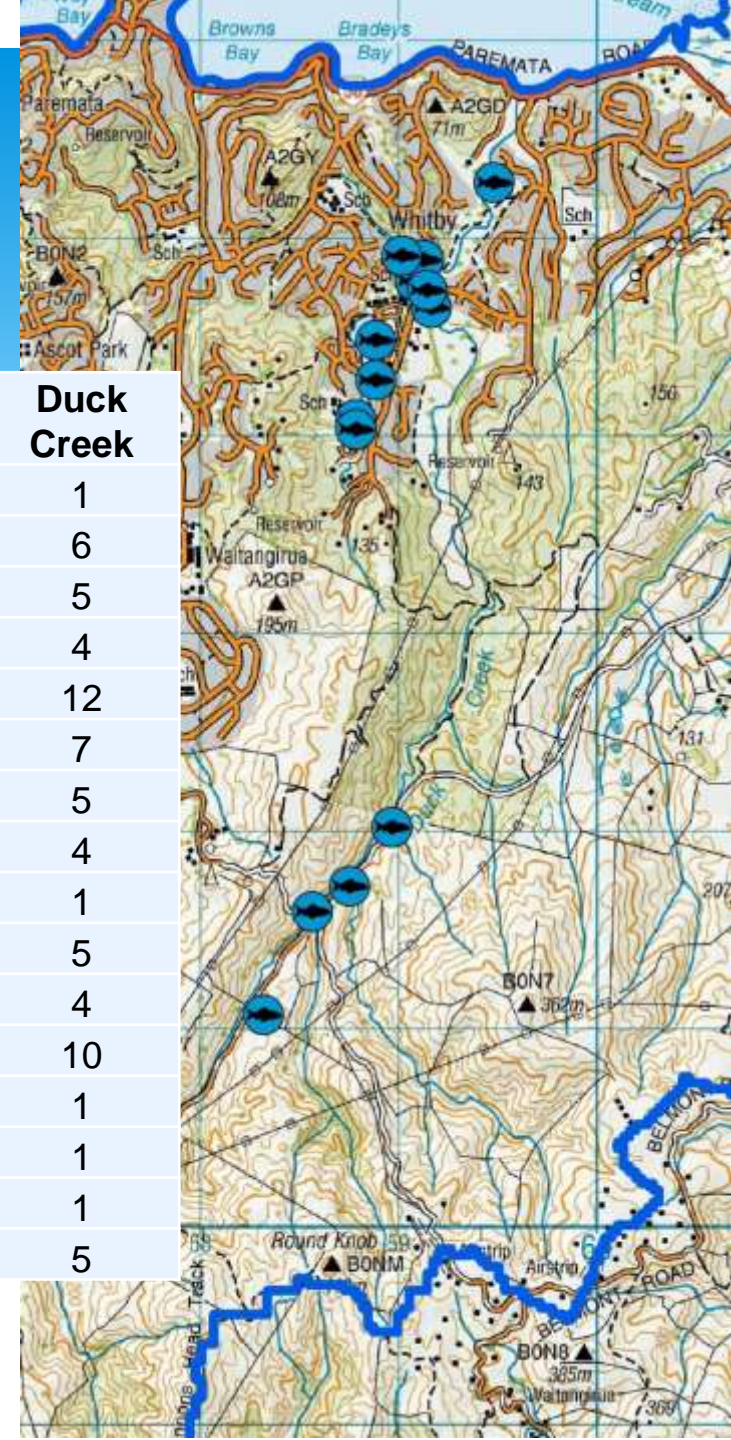


# Duck Creek

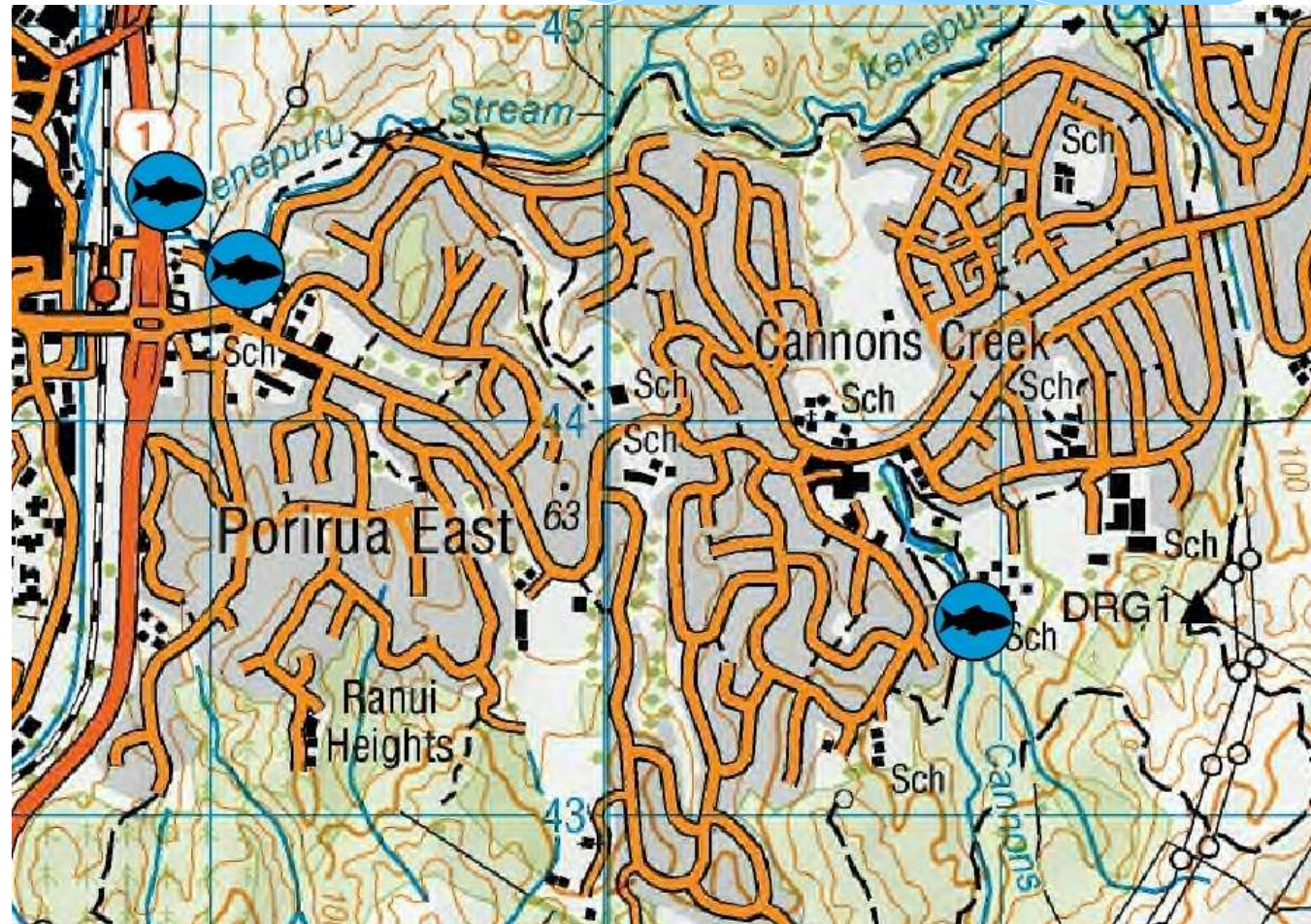


# Duck Creek

Species	Threat Rank	Duck Creek
Lamprey	Threatened-Nationally Vulnerable	1
Giant kokopu	At Risk-Declining	6
Inanga	At Risk-Declining	5
Koaro	At Risk-Declining	4
Longfin eel	At Risk-Declining	12
Redfin bully	At Risk-Declining	7
Banded kokopu	Not Threatened	5
Common bully	Not Threatened	4
Common smelt	Not Threatened	1
Freshwater shrimp	Not Threatened	5
Koura-ŋá	Not Threatened	4
Shortfin eel	Not Threatened	10
Bully sp.	N/A	1
No species found	N/A	1
Unidentified eel	N/A	1
Unidentified Galaxiid	N/A	5



# Kenepuru Stream Cannon's Creek



# Kenepuru Stream Cannon's Creek

Species	Threat Rank	Kenepuru	Cannons Creek
Shortjaw kokopu	Threatened-Nationally Vulnerable	1	
Giant kokopu	At Risk-Declining	1	
Inanga	At Risk-Declining	2	
Longfin eel	At Risk-Declining	1	
Redfin bully	At Risk-Declining	1	
Common bully	Not Threatened	3	
Shortfin eel	Not Threatened	1	
Banded kokopu	Not Threatened	1	2
Koura	Not Threatened		1
Unidentified eel	N/A	2	1

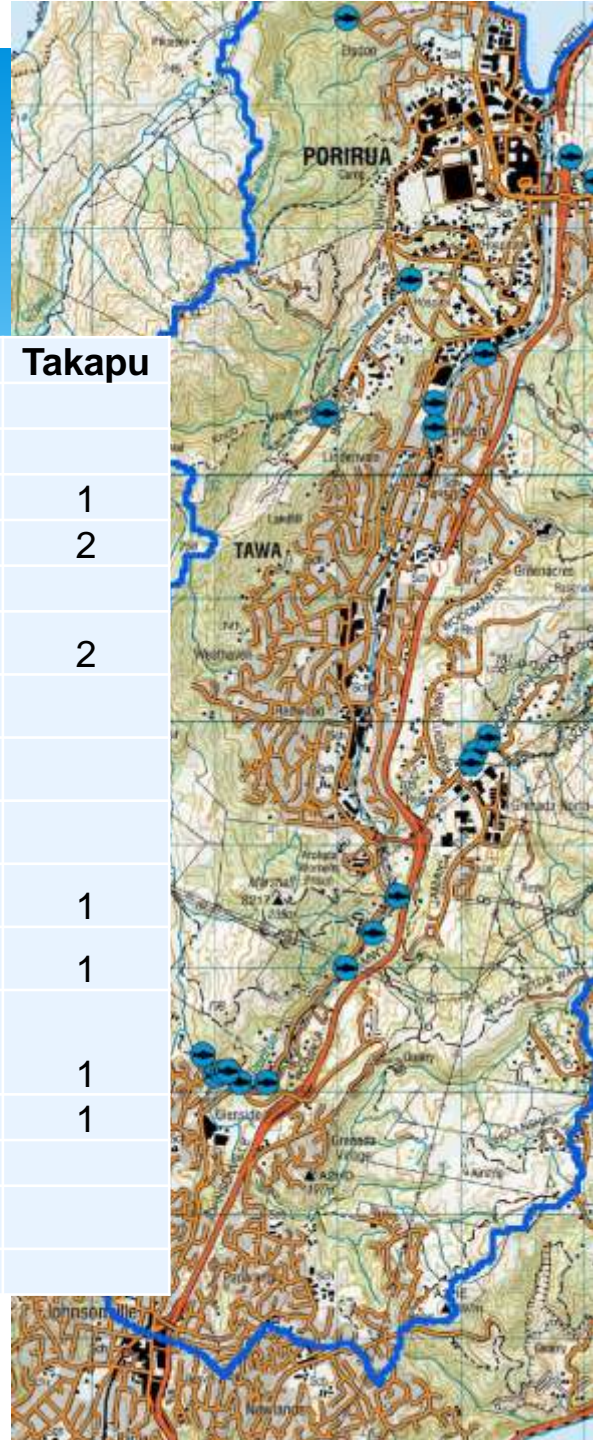


# Porirua Stream and Takapu Stream

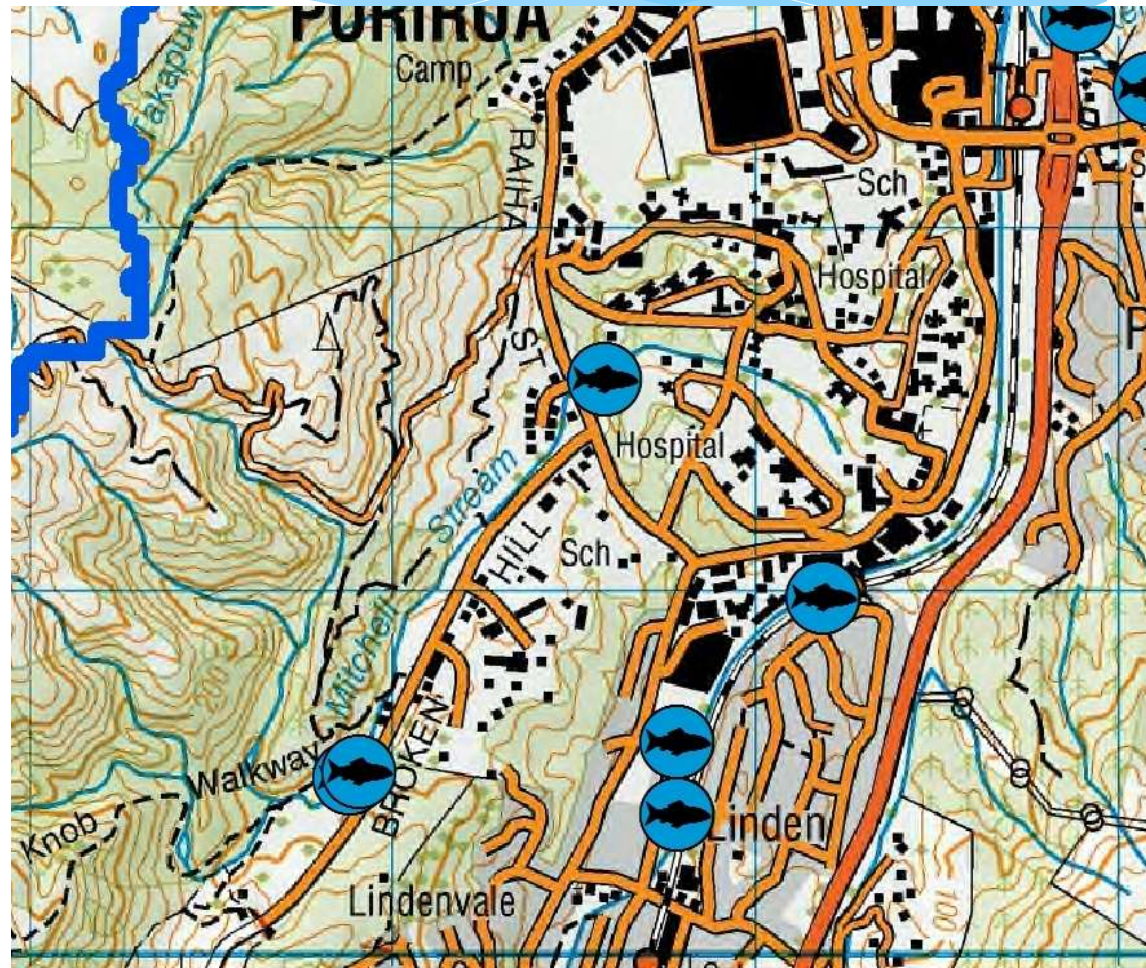


# Porirua Stream and Takapu Stream

Species	Threat Rank	Porirua	Takapu
Giant kokopu	At Risk-Declining	2	
Inanga	At Risk-Declining	2	
Koaro	At Risk-Declining	1	1
Longfin eel	At Risk-Declining	18	2
Redfin bully	At Risk-Declining	4	
Banded kokopu	Not Threatened	0	2
Common bully	Not Threatened	17	
Common smelt	Not Threatened	2	
Giant bully	Not Threatened	1	
Koura	Not Threatened	2	1
Shortfin eel	Not Threatened	8	1
Upland bully (East Coast South Island)	Not Threatened	2	1
Bully sp.	N/A	2	1
Unidentified eel	N/A	19	
Unidentified Galaxiid	N/A	3	
Brown trout	Introduced and naturalised	2	

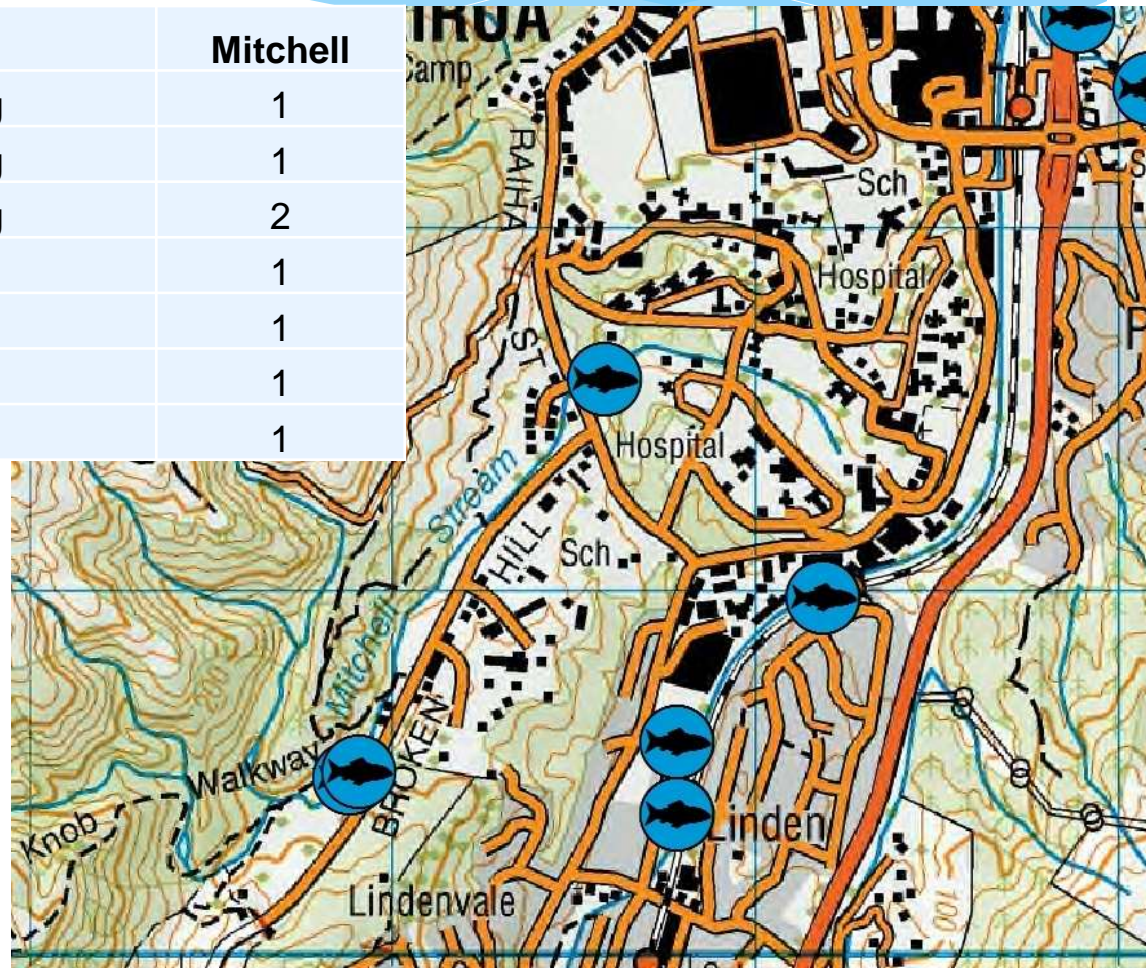


# Mitchell Stream



# Mitchell Stream

Species	Threat Ranking	Mitchell
Koaro	At Risk-Declining	1
Giant kokopu	At Risk-Declining	1
Longfin eel	At Risk-Declining	2
Banded kokopu	Not Threatened	1
Koura	Not Threatened	1
Common smelt	Not Threatened	1
Bully sp	N/A	1





# Takupawahia Stream Te Onepoto Stream



# Takupawahia Stream

## Te Oneopoto Stream

Species	Threat Rank	Takupawahia	Te Oneopoto Bay
Inanga	At Risk-Declining		1
Longfin eel	At Risk-Declining	1	1
Redfin bully	At Risk-Declining	1	
Banded kokopu	Not Threatened	1	1
Shortfin eel	Not Threatened		1



# Inanga spawning

Inanga shoals seen

Inanga rearing habitat

Inanga egg laying habitat (circled, red next map)

(Blue next map = reach surveyed)

Greater Wellington Regional Council 2013: Inanga spawning habitats in Greater Wellington - Part 1 - Kapiti, Porirua, Wellington and Hutt City. NIWA Client report CHC01/67, No. WRC/RP-T-01/59 Prepared for Greater Wellington Regional Council, Wellington: 67 pp.



# Inanga spawning

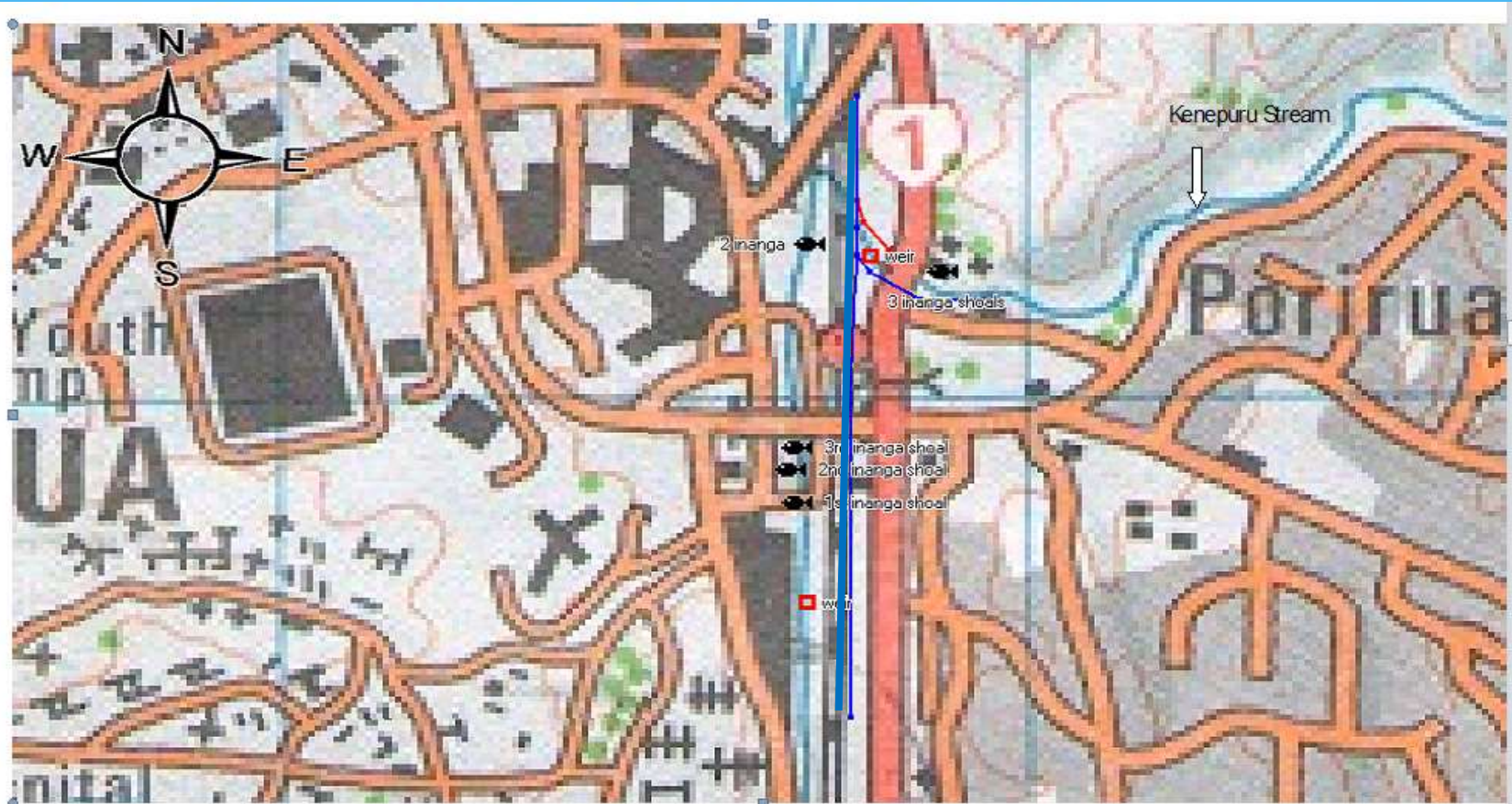


Figure 22: Survey extent (blue), and area of potential spawning grounds (red) on the lower reaches of Porirua Stream.

# Inanga spawning



**Figure 24:** Three large shoals of inanga were observed in the shallow reach of Porirua Stream between the two bridges. Note the vertical concrete-clad banks on each side of the stream.

Figure 22:

# Inanga spawning



**Figure 25:** Kenepuru Stream, looking downstream below the weir. The right bank (S.H. 1 side) has the best potential for spawning habitat restoration. It already comprises established toe toe and raupo vegetation.

Not toe toe but pampas – however still fulfils role of foliage in water for spawning

# Inanga spawning



**Figure 28:** Extensive saltmarsh at the mouth of Duck Creek.

# Inanga spawning



**Figure 29:** Suitable spawning vegetation downstream of the Whitby golf course on Duck Creek. The plant community comprised a mixture of tall fescue, toetoe and flax.



# Structures in waterways

Structures can create barriers  
Speed up flow  
Big drop  
A few species climb  
Not overhangs



# Structures in waterways

Laboratory experiments showed that the climbing ability of poor-swimming fish species, such as inanga (*Galaxias maculatus*), depended on fish size and the length and slope of the ramp to climb, but not the availability of resting pools.

Further, *in situ* experiments conducted at 13 culverts showed that fish could not pass (0% passage) undercut (perched) culverts unless aided by an experimental ramp (43% passage)

<http://www.biol.canterbury.ac.nz/ferg/urban.culvert.shtml>



# Structures in waterways

Greater Wellington Regional Council survey, but effects of many structures not yet assessed, and not all structures catalogued



# Structures in waterways

Debris in stream is habitat for aquatic species  
But  
Can be flood hazard



# Works in streams

